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AUTHOR(S):

Yanagisawa, Masayuki

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Fund-Raising Activities of a Cooperative in the Red River Delta: A Case Study of the Coc Thanh Cooperative in Nam Dinh Province, Vietnam

Masayuki YANAGISAWA*

Abstract

The system of agricultural production in the Red River Delta based on village-level agricultural cooperatives has changed since Resolution 10 of 1988. The function of cooperatives was greatly reduced, and the household came to be considered as an autonomous unit of economy. In the process of change in the cooperatives' function, economic activities took on greater importance. A new law on cooperatives in 1996 also promoted the establishment of new types of cooperatives as autonomous economic organizations. Discussions on cooperatives' function, however, have tended to be too abstract and idealized and to lack specific detail. This paper, therefore, evaluates the economic activities of cooperatives based on an analysis of actual economic activities in one village. Coc Thanh Cooperative (CT) in Nam Dinh Province was chosen for a case study, and its cooperative's economic activities were evaluated from the accounts of revenue and expenditure of the Irish potato business, including the cultivation, and the storage and sale businesses. It was found that the executive staff of CT actively managed the potato business and produced a profit for the whole cooperative. They controlled the material cost and the cooperative's profit according to fluctuations in climatic conditions and market prices in order to generate profits both for the potato farmers and for CT. Besides their regular salary, they received a bonus as reward for managing the potato business. Why did the cooperative manage the potato business as CT's business, rather than leaving it to individual farmers? The advantages of having the potato business run by CT were that it could provide funding and information, function as an arbitrator, operate in line with government policy, and perform welfare works. The disadvantage was its economic inefficiency as a profit-making organization. To improve its economic efficiency as a profit-making organization, CT paid a bonus to the executive staff, thereby motivating them to efficient management. CT was an organization with two purposes: the pursuit of economic efficiency and the promotion of welfare works. Since villagers have to get funds by themselves and do public undertakings and welfare works in their own village, economic activities by farmers' associations such as cooperatives should be promoted.

I Introduction

The system of agricultural production based on village-level agricultural cooperatives (hereafter called "cooperatives"), which were formed in the late 1950s in the rural area of North Vietnam, has changed since Resolution 10 (*khoan 10*) was promulgated in 1988. The function of cooperatives, which had planned and controlled production in the villages, was greatly reduced, and

* 柳澤雅之, Center for Southeast Asian Studies, Kyoto University

the household came to be considered as an autonomous unit of economy [Lam *et al.* 1992: 78; Tuan 1997: 7]. In the late 1980s and the 1990s, nominal cooperatives were scrapped and new cooperatives were created as service organizations to assist farmers [Quy and Nha 1999: 108–109].

In the process of the changes in cooperatives' function, on the other hand, economic factor has been pointed out to be an important function of cooperatives. For example, Lam pointed out the importance of cooperatives in commercial economy [Lam *et al.* 1992: 79], and Tuan asserted that, instead of the government in the past, new types of cooperatives had to cope with a monopoly from the market economy [Tuan 1997: 174]. A new law on cooperatives, which was approved by the National Assembly in March 1996, also promoted the establishment of new types of cooperatives as autonomous economic organizations [*Law on Cooperatives* 1996].

These discussions, however, are too abstract and ideal to be clear about contents of the cooperation. The purpose of this paper is, therefore, to evaluate economic activities of cooperatives based on an analysis of actual economic activities in one village.

Coc Thanh Cooperative (CT) in Nam Dinh Province was chosen for a case study, because since 1986 it had been an economic organization involved in cultivation, storage, and marketing of Irish potato. The author visited CT on several occasions between 1994 and 1998 and collected information through participatory surveys and interviews of the staff of the cooperative and farmers. From the accounts of revenue and expenditure of Irish potato business in CT, the cooperative's economic activities were evaluated.

II Outline of CT

II–1 *Location and Organization of CT*

CT belongs to Thanh Loi Commune, Vu Ban District in Nam Dinh Province, lying about 70 km southeast of Hanoi in the lowest part of the Red River Delta (Fig. 1).

The population of CT in 1997 numbered 3,742 people, the total surface area covered 385 ha, and the population density was 972 person/km^2. Of the total population, 98% belonged to agricultural households. The main economic activity of CT was agriculture, and only a few subsidiary enterprises were observed. The number of households was 1,097, and the total cultivated area was 253 ha; thus the cultivated area per household was 0.23 ha, and the cultivated area per capita of population was 0.06 ha on average.

The cooperative in this area was established in 1959 after the establishment of mutual labor groups (*to doi cong*). Eight hamlets (*xom*) formed their own cooperatives. After some consolidation and abolition of these eight hamlets, they formed the present cooperative in 1980, and hamlet was administratively called brigade (*doi*).

The number of regular staff who manage the cooperative's activities and draw salary from the cooperative is 27, of whom 6 are executive staff, 5 are normal staff, and 16 are the head and secretary from each of the eight brigades in the cooperative. In the following description,

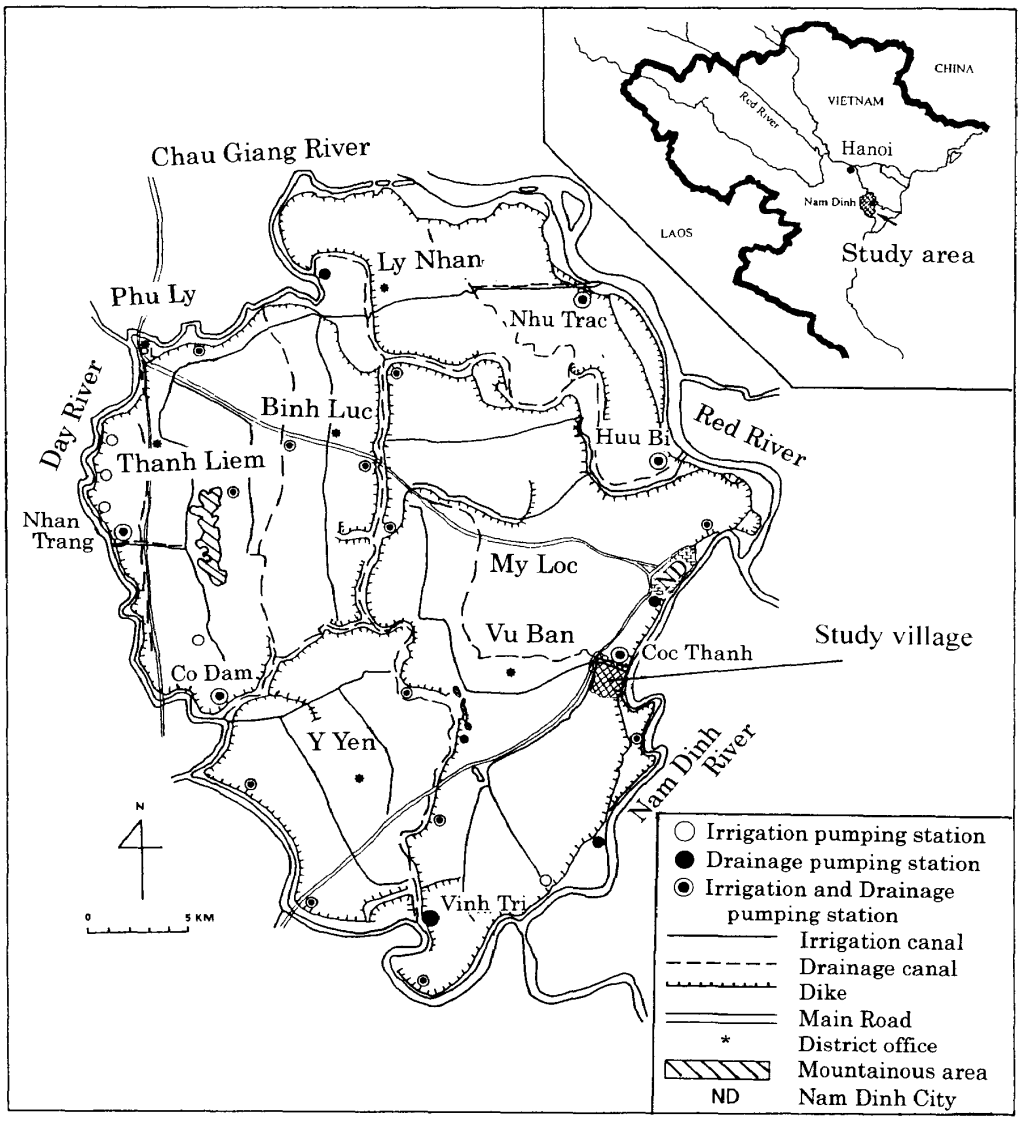

Fig. 1 Location of the Study Village

"CT" means the Coc Thanh Cooperative as an administrative unit, and "the cooperative" means the group of 27 staff of the Coc Thanh Cooperative, who manages the potato business.

II–2 *Climatic Conditions*

Fig. 2 shows the mean monthly rainfall and air temperatures recorded at the Nam Dinh Meteorological Station, 7 km from CT, from 1986–1995. The average annual rainfall was 1,610 mm, 90% of which fell from May to October, the rainy season. The variation between years was large, however, from a high of 3,005 mm in 1994 to a low of 977 in 1988. Air temperature is high from May to September, and the average monthly temperature during this period is above 27°C. In other months, it seldom exceeds 24°C. From December to February, it is cold, with minimum temperatures sometimes falling below 5°C. If seedlings of spring rice are exposed to an extended cold spell, they are damaged and the harvest is likely to be considerably

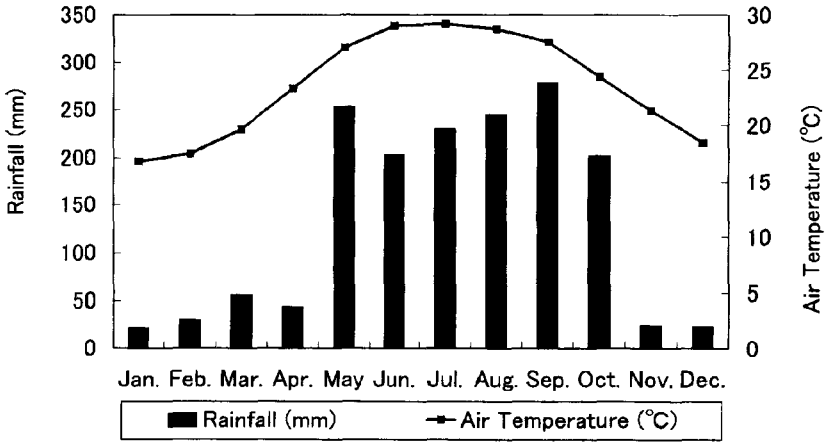

Fig. 2 Mean Monthly Rainfall and Air Temperatures in Nam Dinh during 1986–1995
Source: Nam Dinh Meteorological Station

Cropping pattern*	Cropping calendar	Planted area (ha)	Percent (%)
	J F M A M J J A S O N D		
VEG	VEG	11.9	6.0
VEG-RR	VEG / RR	15.4	7.9
COOP	Potato / WSR / RR / VEG	8.3	4.2
WSR-RR-VEG	WSR / RR / VEG	9.6	4.9
NB-WSR-NB-RR	NB / WSR / NB / RR	10.9	5.5
WSR-RR	WSR / RR	141.0	71.5

Fig. 3 Cropping Patterns and Planted Area in 1996 in the Coc Thanh Cooperative
Source: This figure is based on the land register of CT and interviews with farmers in 1995 and 1996.
Notes: VEG, vegetables; RR, rainy season rice; COOP, fields managed by the cooperative, in which Irish potato is planted from December until February, rice in late spring, rice in the rainy season, and vegetables in the winter season; WSR, winter-spring season rice; NB, nursery beds
* See the text for details.

reduced.

The period from December to February corresponds to the season of drizzling rain called *mua phun* in Vietnamese. The weather can be continuously cloudy for several weeks, and solar radiation is very low.

II–3 *Agriculture in CT*[1)]

The main cropping pattern in CT is double cropping of rice, which occupies more than 70% of the agricultural land area (Fig. 3). The rainy season rice is planted from June to November and the spring season rice from January to June. Average yield of rice from 1989 to 1997 was

1) This section is based on Yanagisawa *et al.* [1999].

4.1 ton/ha in the rainy season and 4.9 ton/ha in the spring season.

The lowest land is occupied by paddy fields, while the highest land is occupied by vegetable fields. Many types of vegetables are planted both for domestic consumption and for the market. Five or more crops are raised in each vegetable plot each year.

In the intermediate zone between the areas of vegetable-based and rice-based cropping are found two cropping patterns: 1) double cropping of rice in the rainy and spring seasons and one or two upland crops in the winter season, and 2) single cropping of rice in the rainy season and two or more upland crops in the winter-spring season. Irish potato production managed by the cooperative is included in the first pattern, in which potato is cultivated from December until February, rice in the late spring, rice in the rainy season, and vegetables in the winter season.

III Brief History of Potato Production in CT

III–1 *Introduction of Spring Potato*

CT has two cropping patterns of potato. One is winter potato (*khoai tay dong*), which is planted in October and harvested in December–January, and the other is spring potato (*khoai tay xuan*), which is planted in December and harvested in March. The main crop before the 1980s was winter potato, because there was no good varieties of spring potatoes.

New improved varieties of spring potato were introduced into CT in 1986. Vietnam Agricultural Science Institute (VASI), an agricultural research institute under the direct control of the Ministry of Agriculture and Rural Development, and one non-government organization assisted in this introduction. To promote potato cultivation in the lowland area of the delta, Dr. Kim, then deputy director of VASI, selected four cooperatives, including CT in Nam Ha Province (Nam Dinh and Ha Nam Province at present) and begun cultivation experiments of spring potato. According to Dr. Kim, CT was selected because it had many fields with sandy soil, had cultivated many vegetables including potato, and were characterized by the strong leadership of the cooperative.

After retiring from VASI, Dr. Kim established an NGO named KVT Project, and, with the assistance of Dutch experts, he continued to introduce excellent potato varieties from Holland into rural Vietnam. CT contracted with KVT Project for spring potato cultivation, and started seed potato production from stock seed potato brought by the KVT Project. As a result, spring potato production was started in CT from 1986.

III–2 *Land Distribution and Potato Production Areas in CT*

After the decision to introduce spring potato cultivation, the cooperative held several meetings with the heads and secretaries of the eight brigades in order to allocate land for cultivation. As a result, Brigades 1, 2, 3, 4, 5, and 6 decided to cultivate spring potato in certain designated fields under the direction of the cooperative. Brigades 7 and 8 decided not to cultivate, because they had no fields suitable for spring potato production. According to the executive

staff of the cooperative, these fields were chosen for spring potato cultivation because: (1) they had been seed rice fields that were managed cooperatively by several brigades; (2) drainage and irrigation was readily controllable because of the location near canals; (3) the soil was suitable for potato; and (4) it was easy to manage cultivation because the fields were near a residential area.

Based on Resolution 10 of the central government issued in 1988 (*khoan 10*) and on Instruction 115 of Nam Ha Province issued in 1992, cooperatives' land was assigned to farming households for long-term use. A series of agricultural renovation policies during this period brought about a transition from a group farming system to privatization and a market economy. In CT, land was allocated to individual farmers and a land register was drawn up in 1994, when the cooperative decided that potato cultivation should be continued in the designated fields, and the cooperative managed the potato production even though the land was allocated to individual farmers. The designated potato fields were, therefore, allocated to the farmers who had intended to continue potato cultivation. According to the land register of 1994, the average potato area in the designated fields was 120 m^2/household.

Potato cultivation area by brigade is shown in Table 1. Although six brigades had potato fields, Brigades 3, 4, 5, and 6 accounted for 80% of the total potato cultivation area managed by the cooperative. The area of these brigades is included in that of the old commune (*xa*) named Bach Coc. Before 1945, CT was divided into three old communes: Bach Coc (five hamlets), Phu Coc (one hamlet), and Duong Lai (two hamlets). From the late 1950s, several communes, including Bach Coc, were repeatedly reorganized, with changes to their administrative boundaries. Eventually, the three old communes formed CT in 1980. When CT began to plant spring potato in 1986, the fields were located in the area of Bach Coc.

In terms of its natural setting, including soil and water conditions, Bach Coc is not the only place that is suitable for potato cultivation. Duong Lai, which corresponds to Brigades 1 and 2 at present, also has suitable fields for potato cultivation. Bach Coc displayed leadership in

Table 1 Land Allocation of Potato Cultivation Fields in the Coc Thanh Cooperative

Brigade	Area (ha)	Ratio (%)	Old *xa*
1	0.68	13.3	Duong Lai
2	0.33	6.4	Duong Lai
3	1.23	24.2	Bach Coc
4	0.90	17.6	Bach Coc
5	1.27	25.0	Bach Coc
6	0.69	13.4	Bach Coc
7	0	0	Phu Coc
8*	0	0	Bach Coc

Source: Land register of the Coc Thanh Cooperative in 1994

* Although Brigade 8 belongs to Bach Coc, it is located along the Nam Dinh River and about 500 m away from hamlets of Brigades 3, 4, 5, and 6. In 1963 and 1966, Brigades 8 and 6 formed one cooperative.

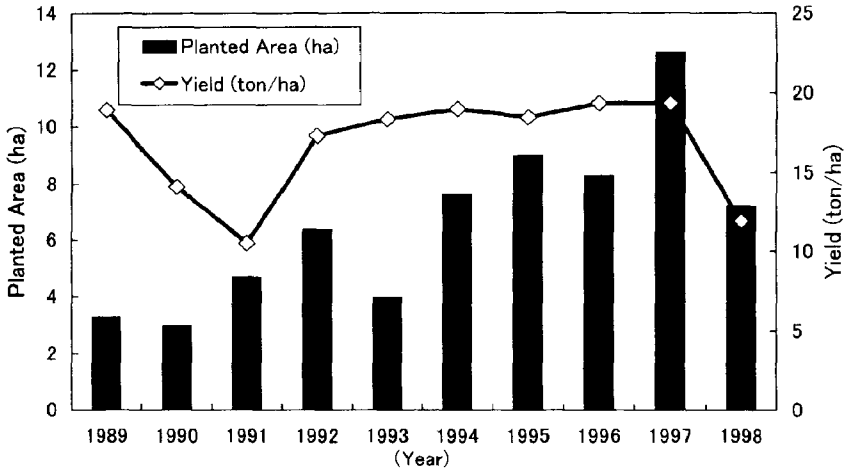

Fig. 4 Yield and Planted Area of Spring Potato in the Coc Thanh Cooperative
Source: From the data of Coc Thanh Cooperative

enclosing the designated fields and promoting spring potato production as an operation of the cooperative.

Spring potato cultivation area and yield in CT is shown in Fig. 4. In addition to 5.1 ha of designated potato fields, spring potato was cultivated in 2.5 ha in 1994, 3.9 ha in 1995, 3.2 ha in 1996, 7.5 ha in 1997, and 2.1 ha in 1998. Any farmer can cultivate spring potato if he/she contracts with the cooperative and follows the cultivation method recommended by the cooperative.

IV Spring Potato Cultivation, Storage, and Marketing

IV–1 *Contracts*

Two types of contracts are employed in potato production. One is between KVT Project and the cooperative, and the other is between the cooperative and farmers. The cooperative plays a key role in the spring potato business, in terms both of contractual arrangement and management.

In the contract between KVT Project and the cooperative, KVT Project provides stock seed potato. After the potato harvest, the cooperative pays back to KVT Project the cost of the stock seed potato and a certain amount of potatoes as service fee.

In the contract between the cooperative and farmers, the cooperative provides knowledge of the cultivation method and a packaged material for potato cultivation, including stock seed potato, chemical fertilizers, and agricultural chemicals. Farmers cultivate seed potato with their own labor and manure, and pay back the cost of packaged material to the cooperative. Although farmers can freely sell the remaining harvest at markets nearby, many of them sell potato on consignment to the cooperative, retaining only what they need for home consumption.

IV–2 *Cultivation*

Farmers must follow exactly the cooperative's instructions regarding cultivation method. The cultivation method in 1997 was as follows.

Planting period was 10–15 December. Before planting, ridges of 1.2 m in width were raised in the field. Two rows of seed potatoes were planted in each ridge, the interval between rows being 30–35 cm, that between plants 25–30 cm, and the planting density 5–8 plants per m^2.

The total amounts of fertilizers to be applied were 650 kg/*sao* (1 *sao* = 360 m^2, 18 ton/ha) of manure, 12 kg/*sao* (333 kg/ha) of urea, 12 kg/*sao* (333 kg/ha) of P_2O_5, 3 kg/*sao* (83 kg/ha) of K_2O. Manure, a mixture of pig and water buffalo dung and rice straw, was scattered around field as a basal dressing after ridging. Chemical fertilizer application as a basal dressing was 8 kg/*sao* of nitrogen fertilizer (222 kg/ha of urea), 12 kg/*sao* of phosphatic fertilizer (333 kg/ha of P_2O_5), and 3 kg/*sao* of potash fertilizer (83kg/ha of K_2O), which were applied between potato plants when planting. When the plants reached 15 cm in height, 4 kg/*sao* of nitrogen fertilizer (111 kg/ha of urea) was applied as the first top-dressing. If potato leaves were still small and yellowish in color 10–15 days after the first top-dressing, some amount of chemical fertilizer can be applied again. About 10–15 days after the first top-dressing, plants were earthed up to promote tuber growth.

During growing period, farmers have to be careful of disease and insect damage. When the disease and insect-forecasting brigade (*doi bao ve thuc vat*) of the cooperative instructs farmers to apply agricultural chemicals, farmers have to follow the instructions with regard to the type and amount of chemicals, and the time of spraying. If there is danger of wide-spread damage by disease or insect, the cooperative organizes a team to apply chemicals effectively to all the fields.

Harvesting begins in early March. If potato plants are still vigorous in the harvesting season, farmers cut the plants at the lower part of stem and leave them for 3–5 days. In this period, potato tubers in the soil become bigger and their epidermis hardens, allowing them to be stored for longer time. This method is introduced to CT in 1986, and called *vo gia* in Vietnamese, which means "harden skin."

Farmers have to follow the recommended cultivation method in order to control quality. For example, some farmers cultivated leafy vegetables and kohlrabi (*Brassica oleracea* L. var. gongylodes) along the foot of ridges. It was effective use of land. Such supplemental vegetable cultivation, however, has been prohibited by the cooperative since 1995, because the cooperative worried about its influence on the quality of potato.

There are two members of staff who guide and manage the potato cultivation during the cropping season. They contract with the cooperative every year. Outside the cropping season, they attend lectures organized by KVT Project to extend their knowledge of cultivation methods.

The cooperative also conducts experiments on potatoes in several farmers' fields. The experiments investigate the proper amount of fertilizer, the optimal cropping pattern, character-

istics of new varieties, and so on.

Potato production in CT receives no financial or technical support from the province or district. Some experts from KVT Project visit CT and check potato growth several times during the cropping season. For example, in spring season of 1998, Vietnamese staff of KVT Project visited 4–5 times and the Dutch experts did twice, at planting and harvesting time.

IV–3 *Storage*

Before 1996, farmers in CT preserved their potato harvest on shelves built in a part of the house that was well-ventilated and out of the direct sunlight. Nevertheless, many seed potatoes rotted in the summer due to the high temperature and high humidity. CT, therefore, constructed a cold storehouse in 1997, which is kept at 4°C all year round and can store up to 35 tons of potato.[2] CT stores seed potato from March until the next planting in November or December without loss of seed potato quality.

CT can use the cold storehouse to generate a profit. It stores potatoes and receive a storage fee from other cooperatives and institutions. CT started this potato storage business in 1998. The total amount of potato stored in 1998 was 11 tons, of which 5 tons was from three cooperatives in Nam Dinh Province, 4 tons from KVT Project, and 2 tons from the farmers in CT.

CT can generate further profit from the storehouse, by storing potatoes harvested in March and selling them in November–December, when the price reaches its highest level in the year. This marketing business also started in 1997.

IV–4 *Sales*

Fig. 5 shows a flow chart of spring potato produced by CT in 1998. The total production of 85 tons was distributed along two routes: supplied to the cooperative (66 tons) and home consumption (19 tons). The latter was used for sale, human consumption, animal feed, and storage as seed potato by farmers.

Potato supplied by farmers to the cooperative (66 tons) is divided into two categories: one is for payment to KVT Project based on contract (44 tons), and the other is for sale by the cooperative (22 tons). The former was paid to KVT Project as the cost of stock seed potato after harvesting. The latter was divided into three categories: potato for sale to merchants and other cooperatives just after harvest (0 ton), potato for sale after storage (18 tons), and loss during storage (4 tons).

The amount of potato supplied to merchants and other cooperatives just after harvest in 1998 was 0 ton, because of the low yield due to disease damage, and because the cooperative had to give priority to the payment to the KVT Project. In 1997, when the production was higher than in 1998, the cooperative sold 60 tons of potatoes to four cooperatives in Ha Nam Province and one institution in Lai Chau Province. These cooperatives and institution got to know about the potato produced in CT through a TV program broadcast by Nam Dinh Prov-

2) In the end of 1998, CT started construction of another cold storehouse, which can store up to 35 tons. The total capacity to store potato at present is, therefore, 70 tons.

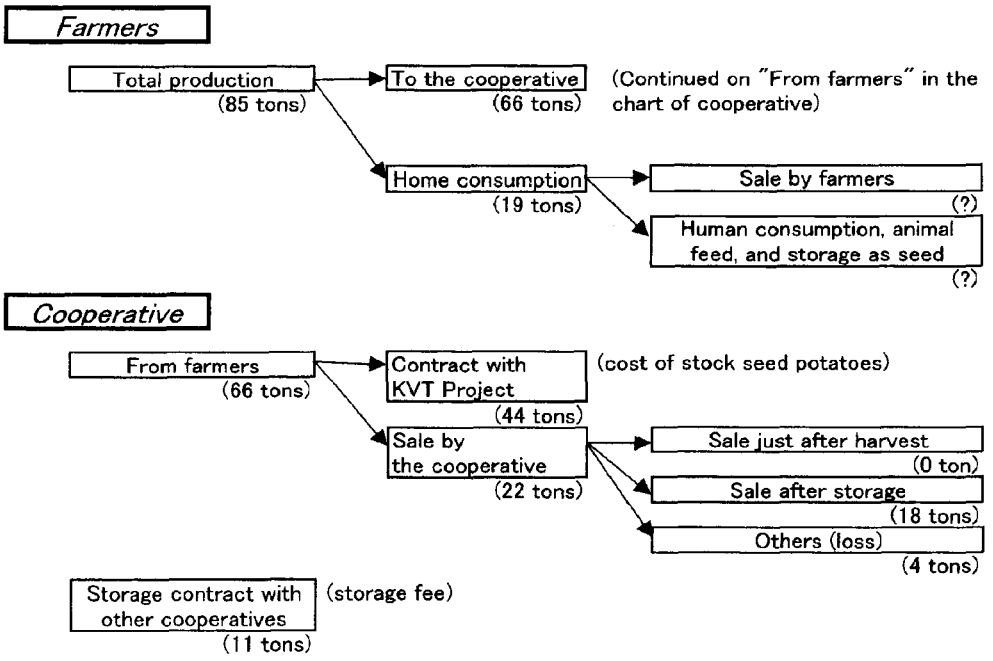

Fig. 5 Flow of Spring Potatoes Produced by the Coc Thanh Cooperative in 1998

ince, a promotional meeting on potato held by Vu Ban District, and publicity by the Seed Potato Center in Hanoi (Trung Tam Khoai Tay Giong). The selling price in 1997 was 1,800 dong/kg (10,000 dong = 100 Japanese yen = 0.8 US$ in 1998).

The total amount of potato kept in the cold storehouse in 1998 was 33 tons, of which 22 tons was sold by the cooperative. The remaining 11 tons was stored at the request of other cooperatives. Of the 22 tons, 18 tons was sold in November, when the selling price reached 4,000 dong/kg, 2.2 times higher than that in March. Four tons was lost during storing because of bad ventilation.

While the cooperative initially sold its potato to customers who came directly to CT, it started more active marketing. Executive staff of the cooperative visited other cooperatives, explaining the cultivation method and the income and costs of potato production. The purpose of this activity, which was free of charge, was to increase the number of potato-cultivating cooperatives, to which CT could then sell seed potato.

V Economics of Potato Production

In this section, I evaluate the cooperative's economic activity by calculating the revenue, expenditure, and profits of the potato business in 1998. The potato business in CT is composed of three businesses, cultivation, storage, and sale. Here, I consider these in two parts, the cultivation business, and the storage and sale businesses, because the latter two are interconnected.

V-1 *Revenues, Expenditures, and Profits of the Cultivation Business*

V-1-1 *The Cooperative's Revenues, Expenditures, and Profits*

Before the planting season of potato, the cooperative purchases a package of materials for potato cultivation, which includes stock seed potatoes, chemical fertilizers, and agricultural chemicals, and sells them to farmers. Table 2 shows the cost of packaged material for the cultivation business.

Stock seed potatoes are imported from Holland through the KVT Project. The cost in 1998 was 405,000 dong/*sao*.

Chemical fertilizers and agricultural chemicals are distributed by the cooperative. The amount of chemical fertilizers applied is based on the instructions issued by the cooperative, which farmers have to follow. The cost of chemical fertilizers in 1998 was 44,340 dong/*sao*.

The cost of agricultural chemicals consists of the cost of the chemicals themselves and labor costs for spraying. In paddy fields, farmers usually spray by themselves. The cooperative's brigade of disease and insect forecasting announces the outbreak of insects and disease to the farmers and advise them of the type and amount of chemicals to be applied, and the time of spraying. In the fields designated for potato cultivation, however, the cooperative sometimes hires people to spray all the fields together in order to control insect and disease effectively, and they actually did so in 1998. The total cost of agricultural chemicals was 19,350 dong/*sao*.

The cost listed above, therefore, make up the cost of packaged material, which was 471,600 dong/*sao*, which included 2,910 dong/*sao* of others.

After the potato harvest, the cooperative collects the costs of packaged material mentioned above, tax and fees, and the service fee from farmers.

Tax and fees are composed of an agricultural tax for the spring season, a fee to the cooperative's fund,[3] a water fee for the government, an irrigation fee for the cooperative's pump, a management fee, a disease and insect forecasting fee, a fee for watchpersons, and so

Table 2 Packaged Material Costs of the Cultivation Business in 1998

Material	Amount (kg/*sao*)		Price per Unit (dong/kg)		Cost (dong/*sao*)
Stock seed potato	45	×	9,000	=	405,000
Chemical fertilizers					44,340
N fertilizer (Urea)	12	×	2,100	=	25,200
P fertilizer (P_2O_5)	12	×	970	=	11,640
K fertilizer (K_2O)	3	×	2,500	=	7,500
Agricultural chemicals					19,350
Others					2,910
Total					471,600

3) CT establishes a fund called the cooperative's fund. Cost of infrastructure, such as building a school, bridge, and canal, and social welfare are provided by this fund.

Table 3 Tax and Fees of the Cultivation Business Paid by Farmers in 1998
(unit: kg of unhulled rice per *sao*)

Expenses	Cost
Agricultural tax	9.1
Cooperative's fund	3.5
Water fee for the government	5.0
Irrigation fee for the cooperative's pump*	1.5
Management fee**	12.1
Disease and insect forecasting fee	0.8
Fee for watchpersons	0.2
Others	0.4
Total	32.6
	(= 48,825 dong/*sao*)

* Irrigation two times (two and three days respectively) by the cooperative's mobile pumps during the season

** 1.2 kg/*sao* was the cost for normal year, but 10.85 kg/*sao* is added for the cost of lining canals

on (Table 3). The total cost of tax and fees was 32.55 kg/*sao* of unhulled rice, which is equivalent to 48,825 dong/*sao* (rice price, 1,500 dong/kg).

The service fee, which is kept in the cooperative's fund, includes a fee for transportation, brokerage and so on. It was set at 77,175 dong/*sao* in 1998.

The cooperative's total profit from the cultivation business in 1998 was, therefore, equal to the sum of the tax and fees and the service fee, which was 126,000 dong/*sao* (= 48,825 dong/*sao* + 77,175 dong/*sao*). All of these profits were kept in the cooperative as cooperative funds.

V–1–2 *Farmers' Revenues, Expenditures, and Profits in 1997 and 1998*

Farmers' revenues, expenditures, and profits in 1997 and 1998 are shown in Table 4.

As mentioned above, farmers purchase a package of materials for potato cultivation from the cooperative and pay back the cost, which was 471,600 dong/*sao*, to the cooperative after harvesting. In addition, they have to pay the tax and fees and the service fee, which were 48,825 dong/*sao* and 77,175 dong/*sao*, respectively. Farmers' total expenditure for potato cultivation to the cooperative in 1998 was, therefore, 597,600 dong/*sao*.

Farmers provide manure and labor for potato cultivation.

They have to provide 650 kg/*sao* of manure by themselves, which is mixed with pig and water buffalo dung and rice straw. This was equal to 110,500 dong/*sao*, because 1 kg of manure costs 170 dong.[4)]

Labor costs include costs of cultivation management from planting until harvesting, transportation, and application of manure. Although labor cost is different between households and

4) Cost of manure is estimated by the cooperative.

Table 4 Farmers' Revenue, Expenditure, and Profit from Potato Cultivation in 1997 and 1998

	1997	1998
Actual yield	697 kg/*sao*	428 kg/*sao*
Expenditures (dong/*sao*)		
Packaged material cost	625,500	471,600
Tax and fees*	31,785	48,825
Service fee	125,000	77,175
Subtotal	782,285	597,600
Revenues (dong/*sao*)		
Manure	110,500	110,500
Labor cost	47,900	47,900
Harvest	1,254,600	769,860
Subtotal	1,413,000	928,260
Profit (dong/*sao*)	630,715	330,660

* This is originally calculated as unhulled rice, which is equal to 24.45 kg/*sao* in 1997 and 32.55 kg/*sao* in 1998, when the rice-selling price was 1,500 dong/kg and 1,300 dong/kg, respectively.

cultivation years, this amount in 1997 and 1998 was uniformly decided by the cooperative, and cost was 47,900 dong/*sao*.

Another revenue can be got from potato harvest. In 1998, the average yield of potato was 427.7 kg/*sao*, and the selling price of potato was 1,800 dong/kg, which was equal to 769,860 dong/*sao*.

The total farmers' revenue was, therefore, 928,260 dong/*sao*.

Farmers' profit in 1998 was a balance between the revenues and expenditures, which was:

928,260 dong/*sao* − 597,600 dong/*sao* = 330,660 dong/*sao*

Is this profitable compared with rice cultivation? The following is an estimation of profit on the assumption that rice planted in the same field as spring potato. Rice variety was Tap Giao 1, an improved variety.

The total expenditure in 1998 was 135,275 dong/*sao*, which was composed of material costs and tax and fees (Table 5). Tax and fees was the same as potato production. The service fee was assumed to be zero.

The total revenue was 506,500 dong/*sao*, which was composed of manure and labor costs and harvest. Manure and labor costs were estimated by the cooperative.

The rice yield of Tap Giao 1 in the spring season was 240 kg/*sao* (6.7 ton/ha) in 1998, and 237.2 kg/*sao* (6.6 ton/ha) in 1997. The selling price of rice was 1,500 dong/kg in 1998, and 1,300 dong/kg in 1997. The revenue from rice harvest was 360,000 dong/*sao* in 1998 and 308,360 dong/*sao* in 1997.

The profit in 1998 was, therefore, 371,225 dong/*sao*.

The result of profit comparison is shown in Table 6. In 1998, rice cultivation was more profitable than potato cultivation, because the potato crop was damaged by disease and the sell-

Table 5 Farmers' Revenues, Expenditures, and Profit from Rice Cultivation in 1998

	Amount (kg/*sao*)		Price per Unit (dong/kg)		Cost (dong/*sao*)
Expenditures (dong/*sao*)					
Material costs					86,450
Seed rice	1	×	10,000	=	10,000
Chemical fertilizers*					57,100
N fertilizer (Urea)	12	×	2,100	=	25,200
P fertilizer (P_2O_5)	20	×	970	=	19,400
K fertilizer (K_2O)	5	×	2,500	=	12,500
Agricultural chemicals					19,350
Tax and fees					48,825
Service fee					0
Subtotal					135,275
Revenues** (dong/*sao*)					
Manure	450	×	170	=	76,500
Labor cost					70,000
Harvest	240	×	1,500	=	360,000
Subtotal					506,500
Profit (dong/*sao*)					371,225

* The amount of fertilizer is based on an explanatory leaflet from the Nam Ha seed company (cong ty giong cay trong Nam Ha).

** Manure and labor costs were estimated by the cooperative.

Table 6 Comparison of Profit between Rice and Potato Cultivation in 1997 and 1998

	1997		1998	
	Potato	Rice	Potato	Rice
Yield (kg/*sao*)	697.0	237.2	427.7	240.0
Selling price (dong/kg)	1,800	1,300	1,800	1,500
Expenditure (dong/*sao*)	782,285	118,235	597,600	135,275
Revenue (dong/*sao*)	1,413,000	454,860	928,260	506,500
Profit (dong/*sao*)	630,715	336,625	330,660	371,225

ing price of rice rose. According to Fig. 4, however, the frequency of a poor harvest of potato such as that of 1998 is twice in a decade. In the remaining eight years, potato cultivation is approximately two times more profitable than rice cultivation.

V–2 *Revenues, Expenditures, and Profits from the Storage and Sale Businesses*

V–2–2 *Gross Revenue of the Storage and Sale Businesses*

Gross revenue (*tong thu*) of the storage and sale businesses in 1998 was 84,709,700 dong, of which (1) 11,655,700 dong was revenue from storage, and (2) 73,054,000 dong was from sale of seed potato (Table 7).

(1) Revenues from storage

In 1998, the cooperative stored 11 tons of potato in the cold storehouse, of which 5 tons was

Table 7 Revenue from Storage and Sale of Seed Potato in 1998

	Amount (kg)	Unit Price (dong/kg)	Total (dong)
Revenue from storage			
3 cooperatives	4,651	1,000–1,200	5,381,700
KVT Project	4,000	1,000	4,000,000
CT members	2,274	1,000	2,274,000
Subtotal	10,925		11,655,700
Revenue from sale of seed potato			
KVT Project	17,780	4,000	71,120,000
Merchants and others	475	1,800–4,120	1,934,000
Subtotal	18,255		73,054,000
Total			84,709,700

Table 8 Expenditure of the Storage and Sale Businesses in 1998

Items*	Amount (kg)	Unit of Price (dong/kg)	Total (dong)
Seed potato for storage**	16,974	1,800	30,535,200
Cost of losses			
Loss during storage	4,312	1,800	7,761,600
Re-purchase from KVT Project	1,281	4,000	5,124,000
Subtotal			12,885,600
Maintenance fees			
Transportation			965,000
Air conditioner management fee (2 person/season)			2,040,000
Electricity (550 dong/kW × 40 kW/day × 187.5 day)			4,125,000
Bags for sale (11,200 dong/bag)			3,064,000
Others			1,263,920
Subtotal			11,457,920
Total			54,878,720

* See the text for details

** Including 10 kg potato without charge

from three other cooperatives, 4 tons from KVT Project, and 2 tons from farmers belong to CT. The total revenue was 11,655,700 dong.

(2) Revenue from sale of seed potato

After the cooperative purchased potatoes from farmers and stored them in the cold storehouse, they sold the potatoes to KVT Project, merchants in the district, and others. When they purchased the potatoes, the price was approximately 1,800 dong/kg. When they sold the potatoes after storing, the price was a maximum of 4,120 dong/kg. The total revenue from sale of seed potato in 1998 was 73,054,000 dong.

V–2–2 *Expenditures of the Storage and Sale Businesses*

The total expenditure of the storage and sale businesses in 1998 was 54,878,720 dong. Of this,

30,535,200 dong was for purchase of seed potato, 12,885,600 dong was the cost of losses, and 11,457,920 dong was for maintenance fees (Table 8).

Losses during storage were due to rotting as a result of bad ventilation. They amounted to 4,312 kg.

The cooperative stored 32,211 kg of potato, including 21,286 kg for sale and 10,925 kg stored at the request of other cooperatives and KVT Project. The amount of potato for sale decreased from 21,286 kg to 16,974 kg due to the loss of 4,312 kg. This resulted in a shortage of 1,281 kg relative to the contracted amount for sale of 18,255 kg. The cooperative thus bought the 1,281 kg of potato back from KVT Project. The actual amount of potato sold by CT to KVT Project was, therefore, 16,499 kg (17,780 kg – 1,281 kg).

Maintenance fees totaled 11,457,920 dong, including transportation, air conditioner management, electricity, bags for sale, and so on.

V–2–3 *Profit of the Storage and Sale Businesses and Its Distribution*

The profit of the storage and sale businesses was 29,830,980 dong, which was the balance between the gross revenue of 84,709,700 dong and the expenditure of 54,878,720 dong (the depreciation cost of the cold storehouse is mentioned later).

This profit is appropriated as the cooperative's income. The cooperative's total income is composed not only of the profit of the storage and sale businesses, but also that of seed rice and chemical fertilizer sales. The distribution of the cooperative's total income was decided at a meeting of the executive staff of the cooperative, commune, and district.

In December 23, 1998, the cooperative invited a deputy director and the head of agricultural department of Vu Ban District, secretary, vice-secretary, director, vice-director of Thanh Loi Commune and held a meeting to report their statement of accounts for the second half of 1998. The representatives of the cooperative were the six executive members of staff, i.e., the director, two vice-directors, the head of accounting, the head of inspection, and the head of agricultural planning. At the meeting, the total income for the second half of 1998 was reported as follows:

storage and sale businesses of potato, 29,830,980 dong (87.2%)
seed rice sale, 2,999,020 dong (8.8%)
chemical fertilizer sale, 1,389,950 dong (4.0%)

The total income was 34,219,950 dong.[5] The profit from the cultivation business was not reported at the meeting, but appropriated to the cooperative's fund.

The commune director proposed the following distribution of the income:

(1) bonus to the executive staff and farmers of the cooperative, 16,330,000 dong

5) At the meeting, the head of the cooperative reported that the total income was 34,330,000 dong. The figure in this paper is based on the cooperative's document of 1998.

(2) the depreciation cost and payment for the cold storehouse, 15,000,000 dong
(3) the cooperative's fund, 2,889,950 dong

The bonus to the executives was substantially a reward for the potato business, especially for the storage and sale businesses. It was decided by the commune that the amount should not exceed 100% of their own regular salary. The remainder was paid to farmers who achieved a high rice yield as a production bonus.

The total of depreciation cost and payment for the cold storehouse is not fixed. Although it had been 34,000,000 dong in 1997, it was reduced to 15,000,000 dong in 1998 because of the lower potato yield and the loss of potatoes due to rotting during storage. The cooperative adjusted the depreciation cost and payment for the cold storehouse, which depended on profit, because the total construction cost was paid by the cooperative's fund and KVT Project.

The rest of the income was added to the cooperative's fund.

According to the decision of the meeting, besides their regular salary, the executive staff of the cooperative can get a bonus from the cooperative's income, which is mainly derived from the storage and sale businesses.

Since when could the executive staff get a bonus? The amount of bonus is not found in a statement of accounts. According to interviews to executives, although they did not have received a bonus in the past, it has been paid to the executive staff since about 1990, and the seasonal amount was about one million dong per person. In CT, a bonus paid to the executive staff was not only considered as reward for the cooperative businesses by the executives, but also accepted both by the commune and the general meeting of CT members.

VI Conclusion

This paper deals with spring potato management by the cooperative, including the cultivation, and the storage and sale businesses, and focused mainly on the revenue, expenditure, and profit of those businesses. The executive staff of the cooperative actively managed the potato business from the purchase of stock seed potato through cultivation management and storage to sale of product, and produced a profit for the whole CT. In order to generate profits both for the potato cultivation farmers and the whole of CT, they controlled the packaged material cost and the cooperative's profit according to fluctuations in climatic conditions and market prices. At the same time, the executive staff received a bonus as reward for the potato business besides their regular salary.

Although CT is a village organization composed of almost all farmers within an administrative boundary, at the same time, it is considered to be an autonomous village, judging from the economic activity such as potato business and social activities, which carries on a public undertakings and welfare works by themselves.[6] Why did the cooperative manage the potato

6) See Iwai [1997: 56–58] regarding the cooperative's management and social function of CT.

business as a CT's business? If the farmers involved were to establish a potato production association, would its economic activity function be better than that of CT?

The merits gained from the fact that the potato business was run by CT are: (1) the cooperative could raise funds from many people for the construction of the cold storehouse and the purchase of seed potatoes, (2) the cooperative got information on potato cultivation through the province and district, (3) the cooperative functioned as an arbitrator to adjust and allocate the fields for potato production, (4) the cooperative could easily find merchants and institutions to which to sell their potatoes, because the establishment of the business by the cooperative coincided with the government policy and the potato business in CT was publicized through television and the agricultural departments of the district and province, and (5) the potato business could be trusted by non potato growers, because the potato growers paid profit to the cooperative's fund to improve welfare in CT. Conversely, the demerits are: (1) the potato growers are mainly located in the old *xa* Bach Coc, and other farmers cannot profit from the cultivation business, (2) not all profit is returned to the growers, because part is paid into the cooperative's fund and used for public undertakings and welfare works, (3) profit is not always reinvested in the business, and (4) the per capita profit from the cultivation and the storage and sale businesses is lower than it would be if the growers formed a production association. In other words, merits are funding, information, function as an arbitrator, the coincidence with government policy, and the cooperative's welfare works; and the demerit is economic inefficiency as a profit-making organization. Because of the merits of funding, information, and the coincidence with government policy, CT became an economic organization based on almost all villagers. To improve its economic efficiency as a profit-making organization, which reduced the fact that CT is composed of almost all villagers, CT paid rewards to the executive staff, thereby motivating them to efficient management. As a result, CT became an organization with two purposes: the pursuit of economic efficiency and the promotion of welfare works in CT.

Economic activity of CT is not necessarily rational from economical point of view. So long as the central and local government, however, do not have enough funds to engage in public undertakings and welfare works at the village level, villagers have to get funds by themselves and do public undertakings and welfare works in their own village. In that sense, economic activities by farmers' associations such as cooperatives should be promoted.

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